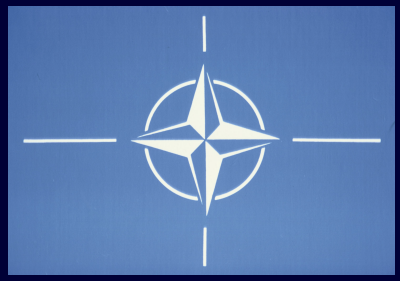
SUPPORT FOR RAPID ENVIRONMENTAL ASSESSMENT USING AIRBORNE LIDAR TECHNOLOGY



REA WITH AIRBORNE LIDAR

Outline

- Linked Seas 2000
- Rapid Environmental Assessment (REA)
- Airborne lidar hydrography (ALH)
- SHOALS mission
- Future of REA

REA WITH AIRBORNE LIDAR

Linked Seas 2000

NATO peace support training exercise

Portugal, April 2000

REA WITH AIRBORNE LIDAR

An objective: Linked Seas 2000

Utilize proven sensors for REA

Space

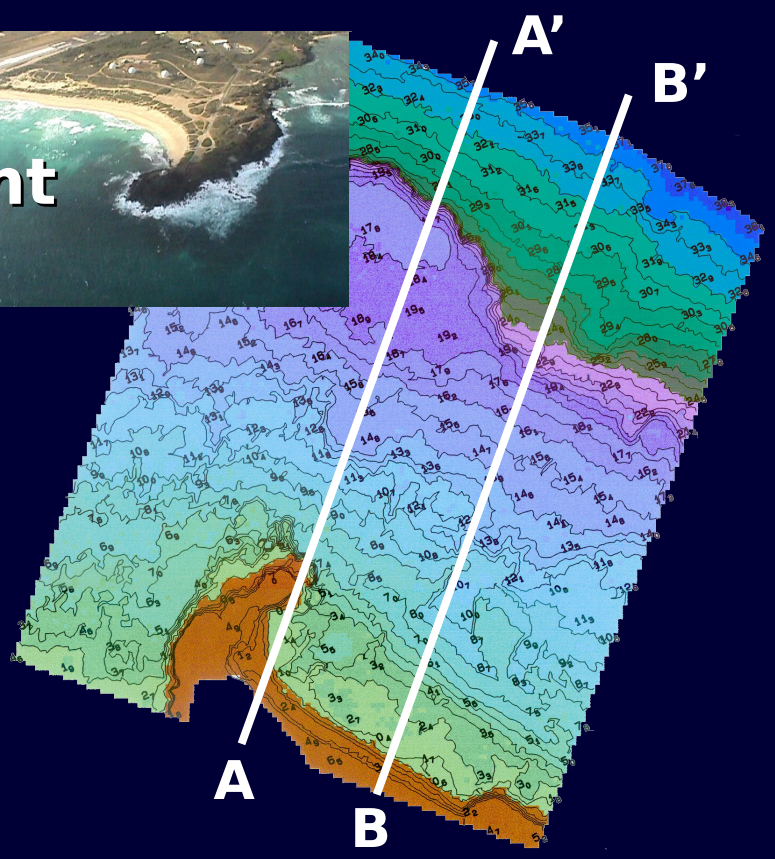
Air

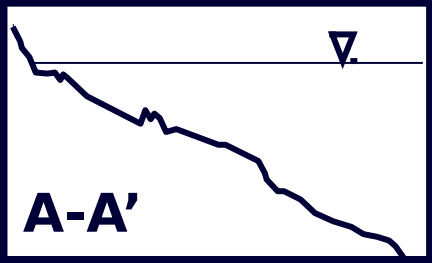
Sea

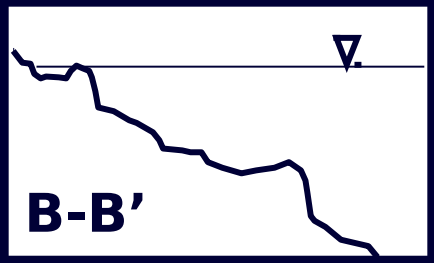
REA WITH AIRBORNE LIDAR

REA

- Site characteristics
  - Routes of egress
  - Beach type/gradient
  - Dune height
  - Anchorage



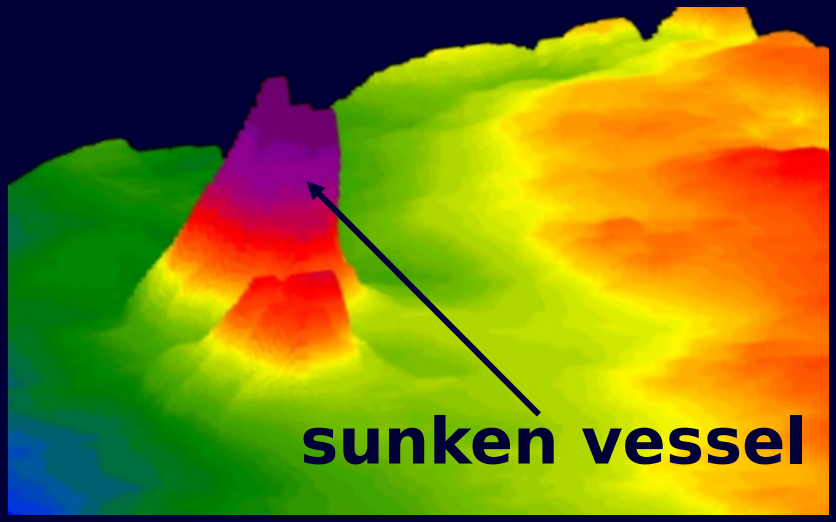


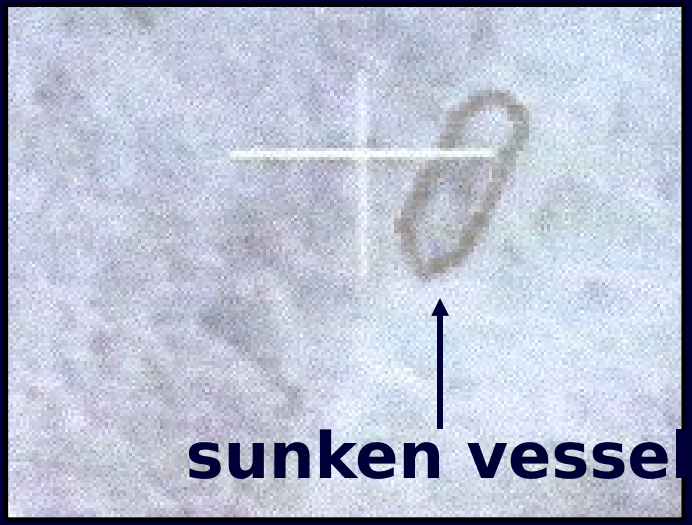


REA WITH AIRBORNE LIDAR

REA

- Obstacle and hazard detection
  - Reefs
  - Bars
  - Barriers
  - Sunken vessels

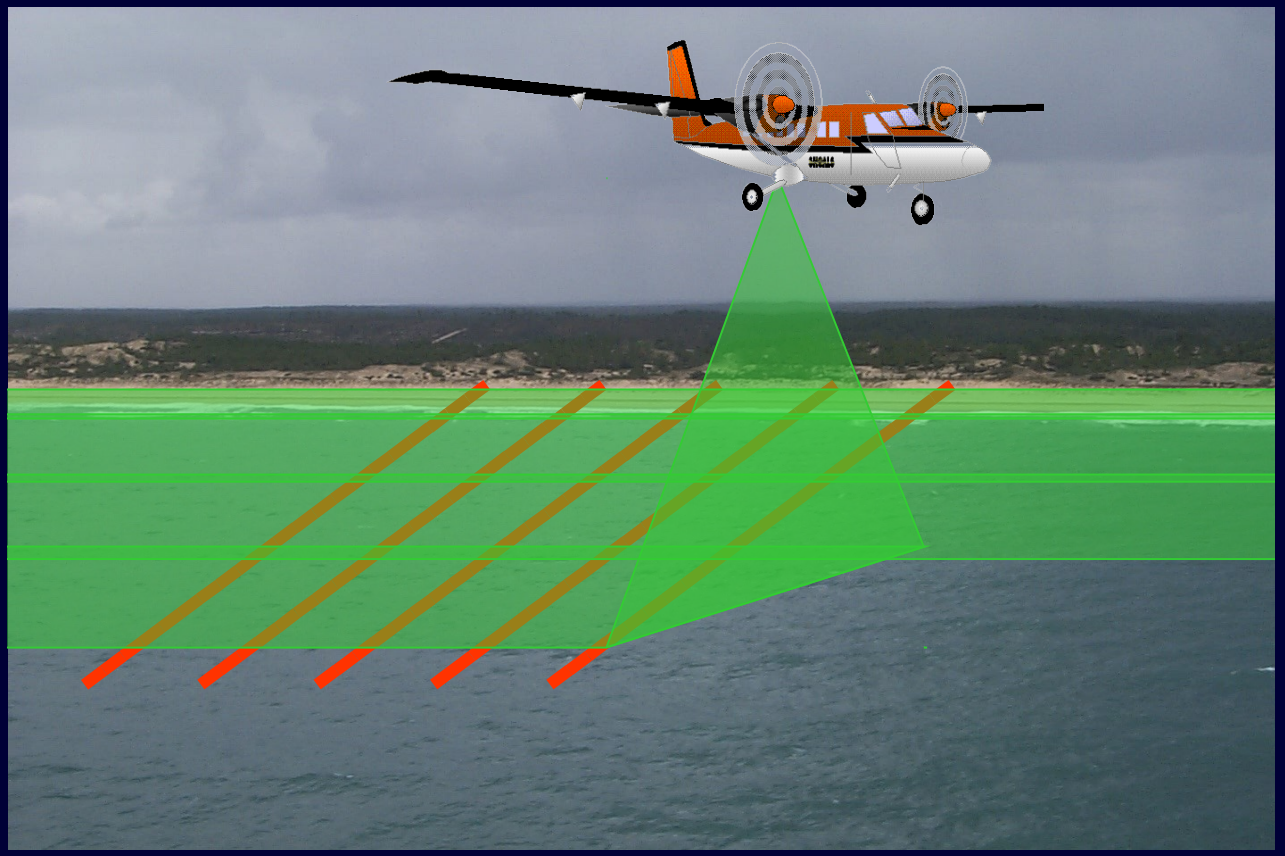




REA WITH AIRBORNE LIDAR

ALH: Benefits for REA

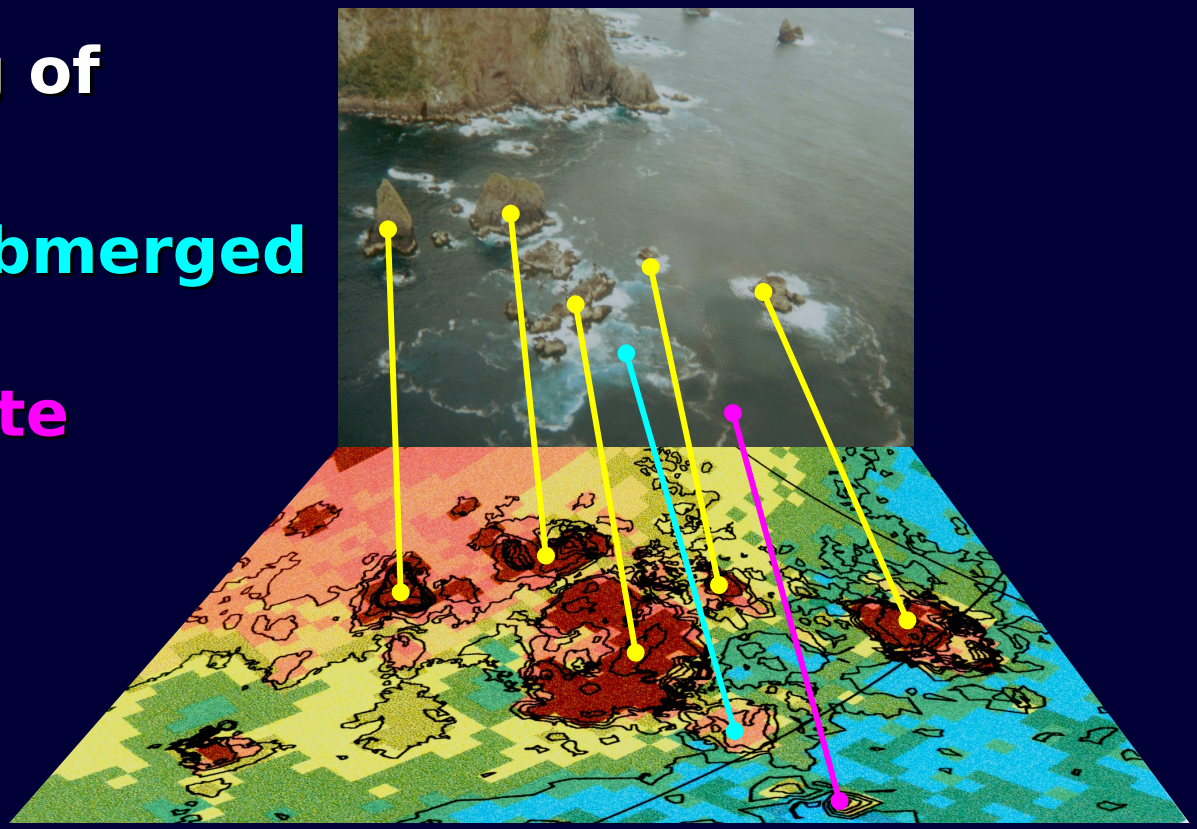
- Operates in shallow water regions
- Extends survey over the beach
- Covers large regions efficiently



REA WITH AIRBORNE LIDAR

ALH: Benefits for REA

- Accurate positioning of features
  - Exposed
  - Semi-submerged
  - Underwater



REA WITH AIRBORNE LIDAR

SHOALS Mission

12 April:
Arrive in Portugal

16 April:
Survey Pinheiro da Cr

19 April:
Survey Porto Santo

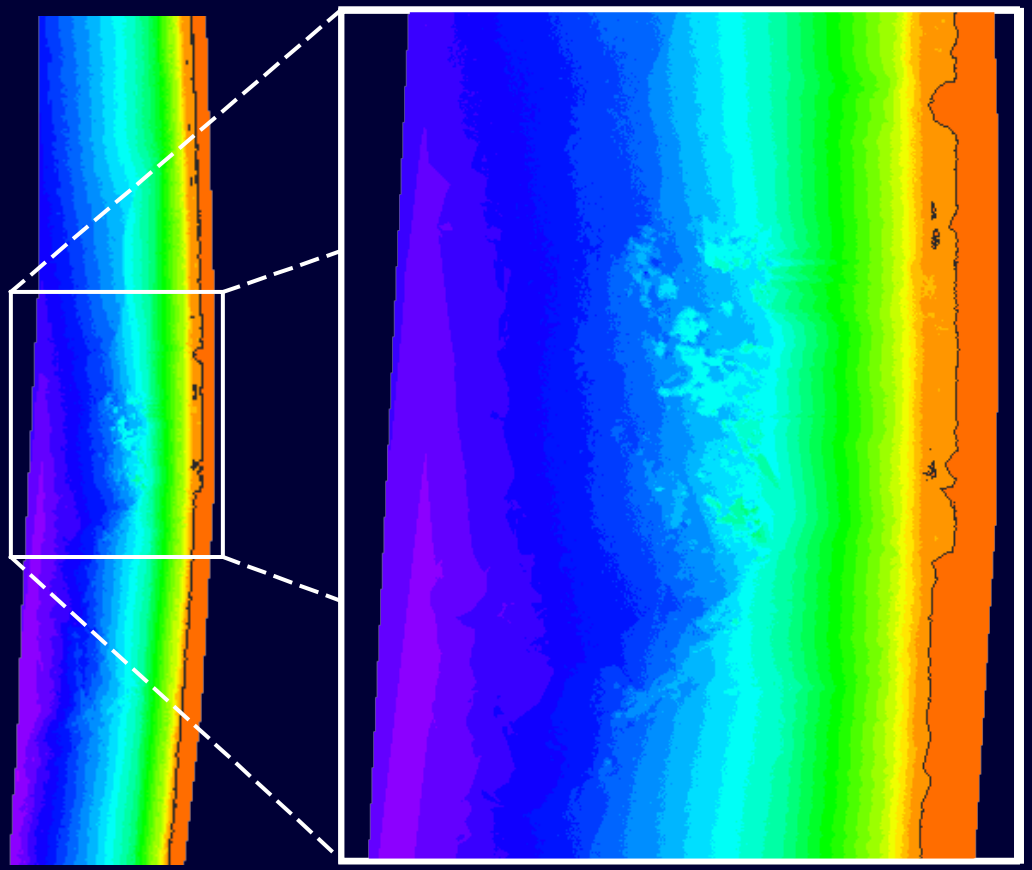
21 April:
Return to US

REA WITH AIRBORNE LIDAR

SHOALS Mission: Pinheiro da Cruz

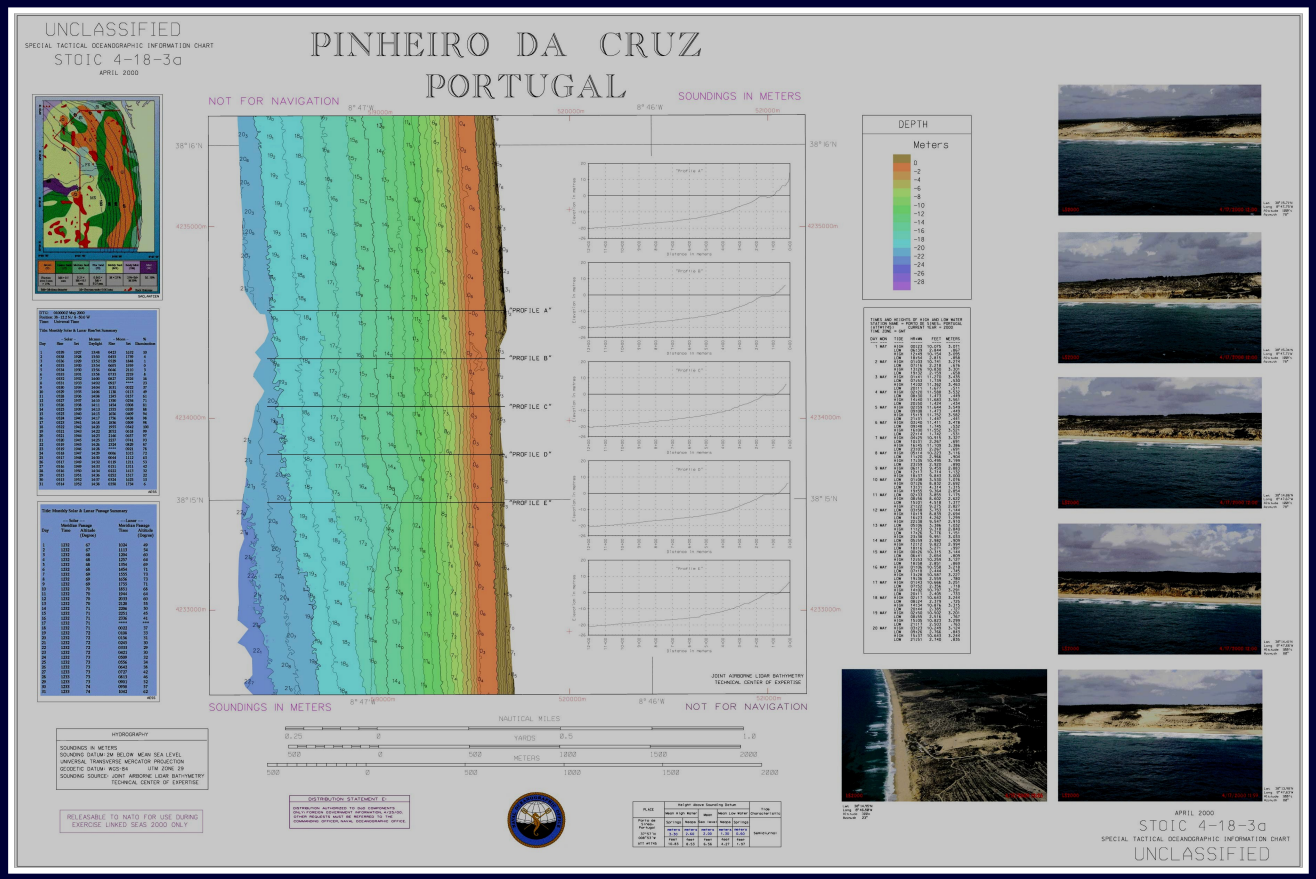
REA WITH AIRBORNE LIDAR

SHOALS Mission: Pinheiro da Cruz



REA WITH AIRBORNE LIDAR

SHOALS Mission: Data Products



REA WITH AIRBORNE LIDAR

Achieved all Linked Seas 2000 REA objectives

- **Rapid data collection**
- **Operation in adverse weather conditions**
- **Fusion with other data products**
- **Rapid product generation**

REA WITH AIRBORNE LIDAR

Future of ALH

1) **Charting**

C ompact
H ydrographic
A irborne
R apid
T otal
S urvey

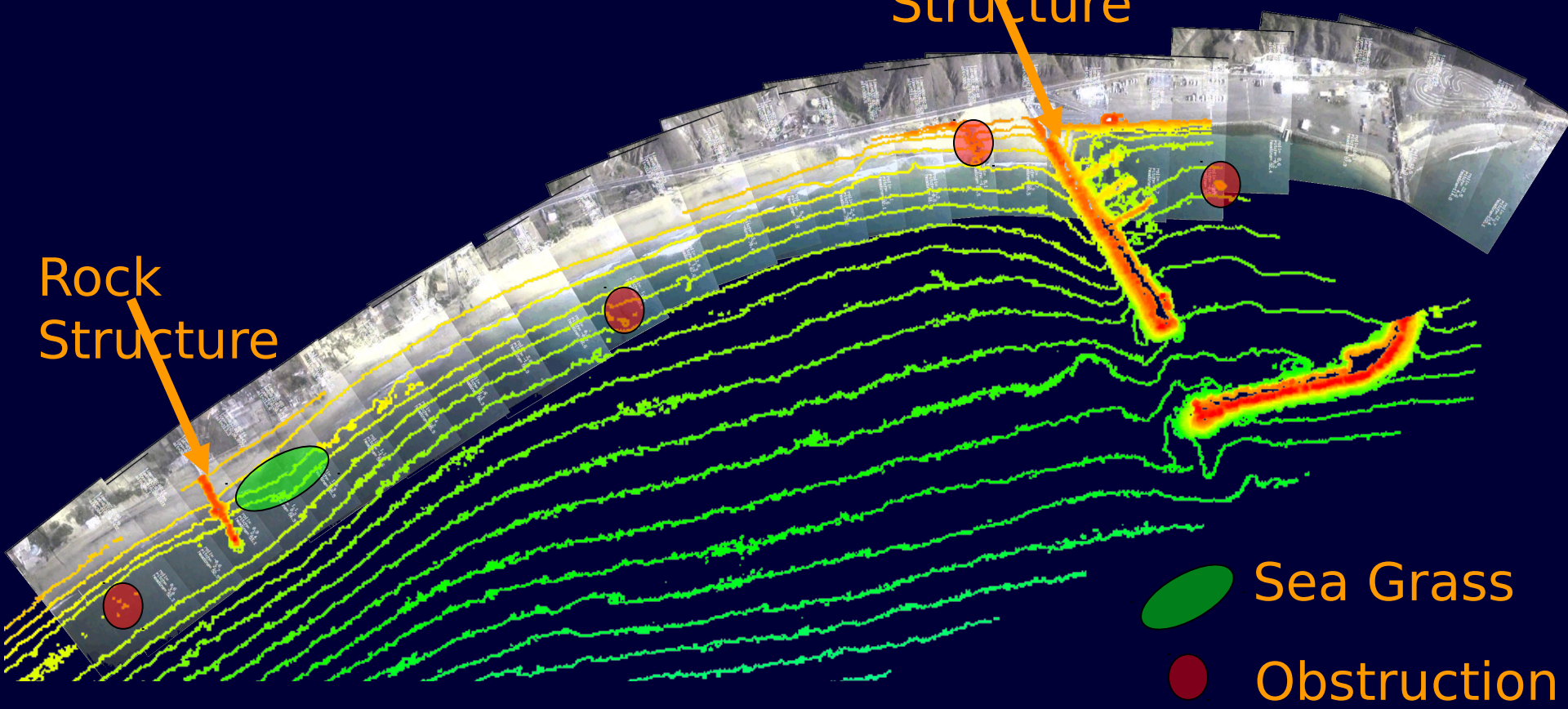
2) **Tactical**

B athymetric
A nd
T opographic
S urvey

3) **Commercial**

REA WITH AIRBORNE LIDAR

Future of REA



REA WITH AIRBORNE LIDAR